

THE EFFECT OF USING DUOLINGO APPLICATION THROUGH STUDENTS VOCABULARY TO THE TENTH-GRADE AT SMKN 1 SOJOL UTARA

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Abstract:

This research aims to find out the Effect of using the Duolingo application can improve the students' vocabulary mastery or not. This research used quantitative research. The research methodology of this research is quasi – experimental design. The population of this research was class X SMKN 1 Sojol Utara with consisting of 76 students. The sample of this research was class X TKJ A consisting of 30 students as the experimental group and class X NKPI consisting of 16 students as the control group. The experimental group was taught using the Duolingo application media while the control group used conventional teaching. Data analysis in this research used the SPSS program. The results of data analysis show that $t - \text{table}$ (2.01) is lower than $t - \text{count}$ (7.13). The results of the research concluded that H_0 was rejected and H_1 was accepted. Based on the results of data analysis, it can be concluded that the use of the Duolingo application provides an Effect for students in vocabulary learning in tenth-grade at SMKN 1 Sojol Utara.

Keyword: *Effects, Vocabulary Mastery, Duolingo Application.*

Abstrak:

Penelitian ini bertujuan untuk mengetahui efek dari penggunaan aplikasi Duolingo dapat meningkatkan penguasaan kosakata siswa atau tidak. Penelitian ini merupakan penelitian kuantitatif. Metodologi penelitian adalah quasi – experimental design. Populasi dalam penelitian adalah siswa kelas X yang terdiri dari 76 siswa. Sampel penelitian ini adalah kelas X TKJ A yang terdiri dari 30 siswa sebagai kelompok eksperimen dan kelas X NKPI sebagai kelompok kontrol. Kelompok eksperimen diajar dengan menggunakan media aplikasi Duolingo sedangkan kelompok kontrol menggunakan pengajaran konvensional. Analisis data dalam penelitian ini menggunakan program SPSS. Hasil analisis data menunjukkan bahwa $t - \text{table}$ (2.01) lebih rendah dari $t - \text{counted}$ (7.13). Hasil penelitian disimpulkan bahwa H_0 ditolak dan H_1 diterima. Berdasarkan hasil data analisis, dapat disimpulkan bahwa penggunaan Aplikasi Duolingo berpengaruh terhadap pembelajaran kosakata siswa kelas sepuluh di SMKN 1 Sojol Utara.

Kata kunci: *Efek, Penguasaan Kosakata, Aplikasi Duolingo*

INTRODUCTION

English is an international language that is used as a means communication in everyday life and in the academic field, functioning as a first, second or foreign language. In Indonesia, English as a foreign and family language is taught in schools from elementary schools to universities. English has become a compulsory

subject and as one of the subjects tested in the National Examination, therefore learning English is a necessity and necessity for all people in the world especially in Indonesia schools as well.

English also learned by Indonesian students as foreign language and according the recent curriculum it is first taught in school. As many other languages, The English language comprises

four primary skills as well: speaking, writing, listening, and reading. Furthermore, language elements like vocabulary, grammar, and pronunciation connect the four primary skills. Among those various linguistic elements.

Vocabulary is one component or sub skill of English that must be taught to students learners because vocabulary has a major role for all language. There are some researcher that vocabulary is more important than grammar. Vocabulary also has an impact on how clearly they convey their thoughts to the reader and that is why vocabulary is so important for students. With vocabulary students can learn knowledge about words in English.

Vocabulary is important role in reading, writing, listening and speaking skills even though the meaning of words is not understood, which also affect to acquire other competencies such as reading, writing, listening and speaking in order communicate well, students need to have a large vocabulary According to (Staehr, 2008),. Therefore students will have no difficulty in mastering other competencies without mastering and understanding vocabulary. Because by knowing the words, they will try how to express their ideas in terms of communicating. An important aspect in learning English is vocabulary mastery of that language without mastering it vocabulary of the language, it will be difficult for us to understand the language.

Vocabulary, which is defined as a single word, is one of the most common aspects of the English language. A spiritual leader must have the necessary tools and knowledge to achieve success in students and teacher can help a students in learning English as stated by (Awalia, 2021). Active and passive vocabulary are the two categories into which vocabulary falls. Words that are appropriate for students to comprehend, pronounce, and use are referred to as active vocabulary. According to (Harmer, 2007). Constructive in speaking and writing while referring to passive vocabulary for words that students can recognize and understand while they read and listen.

Based on definition above, the researcher concludes that English vocabulary can be divided into several kinds including noun, verb, adjective and adverb. It is also included in the part of speech according to (Sulastri, 2022) noun, verb, adverb and adjective are also called vocabulary words, because all of them make up more than 99% of the words in the English dictionary

“Duolingo application is an online language-learning platform. That provides instruction in 27 different international languages. You can use the Duolingo app on your Android smartphone or a computer to access the internet. The Duolingo application has a memory capacity of 28MB (Megabyte). Duolingo application does not use a lot of storage space in mobile phone memory (Teske, 2017).

The first previous studies is Latief (2019) in his research using the duolingo application to improve students' simple sentence writing skills. The second previous studies (Annisa Dwi Tiara, 2021) in her research used the duolingo application to improve student vocabulary by using technology to make English teaching more interesting. Another tool that can help children in learning vocabulary in English is technology. The previous studies (Clara Puspita 2022) used the duolingo application for vocabulary learning and the researcher used the duolingo application for vocabulary learning to find out what the effect of using the duolingo application is in vocabulary improvement. The similarities with my research from the three previous studies are the same media duolingo application and vocabulary learning.

In practicing English to find out what the effect of learning vocabulary by using the Duolingo application was developed by Severin Hacker and Louis Von Ahn as a free language learning tool. One of the most popular language learning platforms. Duolingo is the most downloaded educational application in the world. This application is a learning media that greatly affects the effect of the results of the learning objectives. Because the teacher does not have special time to practice students' vocabulary skills because students only study at school. Therefore, In order to make learning English easier and more enjoyable for students, the Duolingo app purposefully incorporates the idea of "playing while learning" into its vocabulary test items.

In accordance with pre-observation the researcher on October 29 2022 at SMKN 1 SOJOL UTARA. The researcher conducted an interview with the English teacher about vocabulary. The teacher at SMKN 1 SOJOL UTARA said the learning problems in the tenth-grade is students have difficulty memorizing vocabulary and do not know much vocabulary which makes it difficult to pronounce English words. The researcher conducted an interview with the English teacher about vocabulary, unlike

in cities where English lessons start from elementary school. One of the students of SMKN 1 SOJOL UTARA also said that English lessons are very different from Indonesia, especially in vocabulary can be divided into several kinds comprising adjective, adverb, verb, and noun.

The researcher proposes the solution in order to students are easier to memorize and remember the vocabulary they have to improve their motivation consistently and students should memorize at least 10 vocabularies every day and study for 30 minutes every day by using the Duolingo application consistently in order to their vocabulary increases and they can use it's in speaking or writing. Therefore, the vocabulary becomes easier to remember.

Inconnecting on the observation of the students, they have more problems with the lack of vocabulary. Moreover, students now prefer to use cellphones as a result of technology. As a teacher is expected to be creative develop their teaching skills and techniques therefore learning English is an interesting thing to learn.

SMKN 1 SOJOL UTARA is a vocational high school located in Ogoamas II District North Sojol Donggala. At this school, there are two vocational major, namely TKJ (Computer Network Engineering) and NKPI (Nautika Fishing Ship). The state of learning and teaching of this school maximized in order to learning in class can run optimally.

The researcher find out how Duolingo application will affective applied in classroom learning to the tenth-grade students of SMKN 1 SOJOL UTARA. To find out whether Duolingo application can help students in improving their vocabulary or not. Additionally, the classroom will have a positive atmosphere. It can also be an additional form of media to help students' vocabulary grow. She clarified that the researcher plans to carry out an experimental investigation with the following title:

“THE EFFECT OF USING DUOLINGO APPLICATION THROUGH STUDENTS VOCABULARY TO THE TENTH GRADE AT SMKN 1 SOJOL UTARA”.

RESEARCH METHOD

This research study used quantitative research According to (Creswell, 2009) quantitative research methods are methods for testing theories by examining the relationship

between variables. Variable usually measured with research instruments so that data consisting of numbers can be analyzed based on statistical procedures.

The research design is an experimental design. According to (Arikunto, 2021), experimental research is research that aims to determine whether there is influence of the variables studied. In line with Ary said that experimental design refers to the conceptual framework in which the experiment is carried out.

The researcher used quasi-experimental design. There are two classes in this design; the first is experimental class that receives pre-test, treatment and post-test. The second is control class that got pre-test and post test were treated by their teacher. These two classes was given the same pre-test and post test. The design of this research is proposed by (Gay, 2006).

Experimental	O ₁	X	O ₂
Control	O ₃		O ₄

The researcher analyzed the data by using statistical analysis. It used to analyse the result of the test (pre-test and post-test). In computing the individual score of students, she used formula proposed by (Arikunto, 2002).

$$\Sigma = \frac{x}{n} \times 100$$

Where:

Σ = Individual Score

x = Obtained Score

n = Maximum Score

In analysing the data from pre-test and post-test, she used the mean score by using the formula that suggested by (Arikunto, 2010).

a. The formula for experimental class:

$$M_x = \frac{\Sigma x}{N}$$

b. The formula for control class:

$$M_y = \frac{\Sigma y}{N}$$

Where:

M_x = Mean Score of Derivation of experimental Class

M_y = Mean Score of Derivation of Control Class

Σx = Sum Score of Experimental Class

Σy = Sum Score of Control Class

N = Number of Students

Then, she computed the mean score and squad deviation in order to know if there was significant distinct between the result of pre-test and post-test of the experimental and control class by using the following t-test formula suggested by (Arikunto, 2020).

- a. Experimental Class

$$\sum x^2 = \sum x^2 - \frac{(\sum x)^2}{N}$$

- b. Control Class

$$\sum y^2 = \sum y^2 - \frac{(\sum y)^2}{N}$$

Where:

$\sum x^2$ = Sum derivation quadrate of experimental class

$\sum y^2$ = Sum deviation quadrate of control class

N = Number of students

Finally; after getting square derivation of both experimental and control class, she applied t-counted in order to know the significant difference between experimental class and control class by using the formula suggested by (Arikunto, 2010).

$$t = \frac{Mx - My}{\sqrt{\left[\frac{\sum x^2 + \sum y^2}{n_x + n_y - 2} \right] \left[\frac{1}{n} x + \frac{1}{n} y \right]}}$$

Where:

t = significant difference between Experimental Class and Control

Mx = Mean deviation of experimental class

My = Mean deviation of control class

Nx = Number of students in experimental class

Ny = Number of students of control class

$\sum x^2$ = Square deviation of experimental class

$\sum y^2$ = Square deviation of control class

2 = Constant number

The research was conducted on the first semester in academic of the year of 2023/2024. The treatment was conducted from october 29, 2022. The researcher was research tenth-grade students at SMKN 1 Sojol Utara. The population of the research is the tenth-grade students at SMKN 1 Sojol Utara. They consist of three classes, namely TKJ A, TKJ B, and NKPI.

RESULTS AND DISCUSSION

Results

1. Result pretest

The researcher led the pre-test to found student's vocabulary mastery before treatment. The score of the student's vocabulary mastery were tried in pre-test should be visible in the formulas below:

- a. Result of the pre-test in experimrntal group:

$$Mx = \frac{\sum x}{N} = \frac{482.75}{30} = 16.09$$

- b. Result of the pre-test in control group

$$My = \frac{\sum y}{N} = \frac{204.54}{16} = 12.78$$

2. The post-test was conducted to found the students' vocabulary mastery after the treatment given. It can be seen from the post-test score of students in the accompanying formulas above:

- a. Result of post-test in experimental group

$$Mx = \frac{\sum x}{N} = \frac{2.225,65}{30} = 74.18$$

- b. Result of post-test in contol group

$$Mx = \frac{\sum y}{N} = \frac{725.12}{16} = 45.32$$

3. Deviation

In order to find out the significant difference of the students deviation score in pre-test and post-test of Experimental and Control Class, the researcher compute the square deviation which is presented in the following table:

Table 3.1

Deviation score of pre-test and post-test in experimental group

N	Initi	Pre-	Post-	Deviati	Deviation
o.	al	test	test	on (D)	(D2)
		(O1)	(O2)	(O2-O1)	
1.	AL	20	67.14	47.14	2.222,17
2.	AR	21.4	63	41.58	1.728,89
		2			
3.	AL	18.5	84.28	65.71	4.317,80
	M	7			
4.	AT	13	78.57	65.57	4.312,54
	R				
5.	AR	11.4	63	51.58	2.660,49
		2			
6.	AE	8.57	71.42	62.85	3.950,12
7.	AN	11.4	76	64.58	4.170,57
	P	2			
8.	AD	17.1	76	58.86	3.464,49
		4			
9.	AM	14.2	74.28	60	3.600
		8			

10.	DW T	18.5 7	71.42	52.85	2.793,12
11.	FL	21.4 2	83	61.58	3.792,09
12.	FR	21.4 2	64.28	42.86	1.836,97
13.	FH	26	76	50	2.500
14.	FT	8.57	73	64.43	4.151,22
15.	HY T	8.57	70	61.43	3.773,64
16.	HL D	8.57	76	67.43	4.546,80
17.	LR	16	73	57	3.249
18.	MT	10	63	53	2.809
19.	NA	10	83	73	5.329
20.	NH	14.2 8	74.28	60	3.600
21.	NR	46	96	50	2.500
22.	RL	11.4 2	73	61.58	3.792,09
23.	PCI	14.2 8	64.28	50	2.500
24.	RHI	8.57	78.57	70	4.900
25.	RT	26	80	54	2.916
26.	RD	14.2 8	76	61.72	3.809,35
27.	RD Y	21.4 2	78.57	57.15	3.266,12
28.	SR	13	67.14	54.14	2.931,13
29.	SM	14.2 8	70	55.72	3.104,71
30.	ML D	14.2 8	81.42	67.14	4.507,77
Tota l		482. 75	2.225, 65	1.628,3 2	4.411.264, 54

The mean score of deviation of pre-test and post-test in experimental group were calculated as follow:

$$N_x = 30 \longrightarrow M_x = \frac{\sum x}{N} = \frac{1.628,32}{30} = 54.27$$

Table 3.2

Deviation score of pre-test and post-test in control group

N o.	Initi al	Pre- test (O1)	Post- test (O2)	Deviati on (O2- O1)	Deviati on (D2)
1.	AB	8.57	34.28	25.71	661.00
2.	AD	26	58.57	35.57	1,265.2 2

3.	AD L	8.57	40	31.43	987.84
4.	HS	8.57	48.57	40	1,600
5.	HR	10	54.28	44.28	1,960.7 1
6.	IRM	14.28	30	15.72	247.11
7.	ID W	14.28	33	18.72	350.43
8.	ISR	14.28	33	18.72	350.43
9.	MK	8.57	37.14	28.57	816.24
10.	MF	8.57	46	37.43	1,401.0 0
11.	MR	10	46	36	1,296
12.	NF H	20	60	40	1,600
13.	NM	17.14	40	22.86	522.57
14.	RH	8.57	57.14	48.57	2,359.0 4
15.	SB	10	38.57	28.57	816.24
16.	ZFR	17.14	68.57	51.43	2,645.0 4
Tota l		204.5 4	725.1 2	523.58	18.878, 87

The mean score of deviation of pre-test and post-test in control group were determined as follow:

$$M_y = 16 \longrightarrow M_y = \frac{\sum y}{N} = \frac{523.58}{16} = 32.72$$

The sum of square deviation around the means of experimental and control class can be computed in the following ways:

a. The sum of squared deviation of the experimental class:

$$\sum x^2 = \sum x^2 - \frac{(\sum x)^2}{N} = 4.411.264,54 - \frac{(1.628,32)^2}{30} = 4.411.264,54 - \frac{2.651,42}{30} = 4.411.264,54 - 88,380.86 = 4.411.17$$

b. The sum of squared deviation of the control class:

$$\sum y^2 = \sum y^2 - \frac{(\sum y)^2}{N}$$

$$\begin{aligned}
 &= 18.878,87 - \frac{(523.58)^2}{16} \\
 &= 18.878,87 - \frac{274,136,016}{16} \\
 &= 18.878,87 - 17,133,50 \\
 &= 1.745,37
 \end{aligned}$$

The researcher computed the t – counted by utilizing t – counted to found the significance difference between the experimental and control class. The researcher used the equation Arikunto (2006:313) is as follow:

$$\begin{aligned}
 t &= \frac{Mx - My}{\sqrt{\left[\frac{\sum x^2 + \sum y^2}{n_x + n_y - 2} \right] \left[\frac{1}{n_x} + \frac{1}{n_y} \right]}} \\
 t &= \frac{54.27 - 32.72}{\sqrt{\left[\frac{4.411.17 + 18.861}{30 + 16 - 2} \right] \left[\frac{1}{30} + \frac{1}{16} \right]}} \\
 t &= \frac{21.55}{\sqrt{\left[\frac{4.430,03}{44} \right] \left[\frac{46}{480} \right]}} \\
 t &= \frac{21.55}{\sqrt{9.06}} \\
 t &= \frac{21.55}{3.009} \\
 t &= 7.16
 \end{aligned}$$

Discussion

Vocabulary mastery of grade X students at SMKN 1 Sojol Utara students still have difficulties learning and memorizing vocabulary. This is shown by the students' scores in the initial research and the students' vocabulary mastery still needs to be improved. To overcome this problem, the researcher used the Duolingo application as a medium for teaching vocabulary. Thus, the purpose of this study is to find out whether there is an increase in students' vocabulary mastery by using the Duolingo application to the tenth-grade in SMKN 1 Sojol Utara. This study was conducted in eight meetings. The meetings included a pre-test, three treatments, and a post-test. It started from April 25th to May 23th, 2024.

Before applying the treatment, researchers conducted a pre-test for tenth-grade TKJ A class as the experimental group on April 25th at 10.00-12.00 and the NKPI class as the control group received the same form of pre-test consisted of three types of tests, consisting of 10 multiple-choice questions, 15 matching questions, and fill in the blank questions. The results of the pre-test showed that the average in the experimental group was 16.09 and the control group was 12.78. Both groups, students found it difficult to answer the test because they had less vocabulary and did not understand the test related to the test until the time ran out.

The researcher administered treatment in the experimental class over the course of six meetings after administering a pre-test in both the experimental and control classes. The researcher separated the students into multiple groups during the initial meeting.

After that, the researcher asked students about the material to be discussed in each group; this aims to make students actively speak. In teaching and learning activities, they were very enthusiastic about responding to the material because they felt happy about learning. Then the researcher gave topic for each group and made simple fractured stories based on the topic. Furthermore, students played the Duolingo application after the researcher explained the material using infocus in class. Meanwhile, in the control class, the researcher did not use the Duolingo application technique in teaching vocabulary to find out whether the effect of using the Duolingo application could improve students vocabulary.

The second treatment was conducted on May 2 2024, at 07.30-09.30 and 10.00-12.00. The reseacher almost gave the same activity to start the class as in the first treatment, but the topic was fractured stories according to the material in the book. In the second treatment, it was better than first treatment because the students already knew the technique. Therefore, they were more active in the learning process.

The third treatment was applied on May 16th 2024, at 07.30-09.30 and 10.00-12.00. The activities were still the same as the firts and second. The material taught was fractured stories.

After completing all treatments, the researcher conducted a post-test for the experimental group and control group. The same test used for the pre-test was administered to both groups. The control group's post-test was administered on May 23 from 07.30 to 09.30, while the experimental group's was administered from 10.00 to 12.00 on the same day. The experimental group's mean score on the post-test was 74.18, whereas the control group's score was 45.32.

Based on the results of the pre-test and post-test score above, the experimental group's average pre-test value is 16.09 and the post-test value is 74.28, while the control group's average pre-test value is 12.78 and the post-test value is 45.32. It is evident from the pre- and post-test results that the students performed better on the post-test than they did on the pre-test.

Based on the data analysis and hypothesis testing, the researcher found that the t-table value (2.01) was lower than the t-count value (7.16). This means that the null hypothesis (H_0) is rejected and the alternative hypothesis (H_1) is accepted. From the results of the above analysis, it can be concluded that the use of the Duolingo application in vocabulary teaching can improve the vocabulary mastery of tenth-grade students at SMKN 1 Sojol Utara.

CONCLUSION

Students at SMKN 1 North Sojol in the tenth-grade using the Duolingo application. After that, an infocus was used to explain and show the Duolingo application. It was determined that students could learn vocabulary more actively, have fun, be more active in vocabulary learning, and learn something that is not boring because they can play while learning. Therefore, it can improve students' vocabulary mastery and help them collect vocabulary. This can be proven by the results of the post-test, namely that the classification was successfully achieved, and the result of the t-table value of 2.01 is lower than the t-count of 7.16. This shows that the alternative hypothesis (H_1) is accepted while the null hypothesis (H_0) is rejected.

SUGGESTIONS

According to the research conclusion mentioned above, students' vocabulary mastery improved when taught using the Duolingo application for Mobile Assisted Language Learning (MALL). Thus, using media and this method of instruction to teach English is one way for English teachers to help students improve their skills, particularly in vocabulary mastery. Some recommendations have been made for others:

1. Suggestion for the teacher:

This approach is advised for use in the teaching and learning process, particularly when teaching language. Teachers should raise students' awareness of the value of vocabulary in language acquisition, foster the development of creative and enjoyable learning experiences for them, and support their instructional strategies with engaging and representative media.

2. Suggestion for the students:

The students should have higher motivation in learning English, particularly when it comes to vocabulary mastery; should also be more interested in practicing their English and not get bored; and they should take advantage of these

kinds of opportunities.

3. Suggestion for other researchers:

The researchers are expected to find the new strategy, method or approach in order to make students easy and joyful in learning English especially in vocabulary mastery, the researchers always watch the development of education and the researcher are enforced to be agents of change in education.

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